

SUPPORT FOR THE AMENDMENT

Support for the amendment to Claims 5, 17 and 21 is found on page 10, lines 9-11 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment Claims 5-24 will now be active in this application.

REQUEST FOR RECONSIDERATION

The present invention is directed to a method of forming solid-liquid separation on a fatty acid mixture.

Applicants wish to thank examiner Carr for the helpful and courteous discussion held with their U.S. representative on July 13, 2004. At that time, applicants' U.S. representative argued that there was no suggestion in the relied upon references to **adjust** the cooling rate at least once during cooling, nor a suggestion that the cooling rate be 4°C/h or less at a supersaturation ratio of 60% or more. The following is intended to expand upon the discussion with the examiner.

Unsaturated fatty acids have received interest based on their beneficial health effects. The fatty acid composition obtained by hydrolyzing animal and/or vegetable oils does not necessarily produce a desirable proportion of unsaturated fatty acids and accordingly methods of separating unsaturated and saturated fatty acids are sought.

To date, methods of fractionation using a solvent or dry fractionation have not produced entirely satisfactory results and methods of fractionating fatty acids remain an area of interest.

The present invention addresses this problem by providing a method of performing solid-liquid separation on a fatty acid mixture comprising cooling a fatty acid mixture containing a polyglycerol ester of a fatty acid to form crystals of saturated fatty acid which

are then fractionated, wherein the cooling rate is controlled based on the degree of super saturation and wherein the cooling rate is **adjusted at least once** during cooling. Applicants have discovered that by adjusting the cooling rate at least once during cooling, that efficient fractionation of saturated fatty acids from unsaturated fatty acids may be obtained. Such a method is nowhere disclosed or suggested in the cited prior art of record.

The rejection of Claims 5-24 under 35 U.S.C. § 103(a) over Sugiura et al. U.S. 5,952,518 is respectfully traversed.

Sugiura et al. nowhere discloses or suggests a fractionation method in which the cooling rate is **adjusted at least once** during cooling nor that the cooling rate is 4°C/h or less when a supersaturation ratio is 60% or more.

Sugiura et al. describes a method for removing saturated fatty acids from a fatty acid mixture in which crystals of saturated fatty acid are formed by cooling (column 2, lines 1-8). The cooling conditions are described at column 3, lines 33-41 as selected according to the composition of the feedstock fatty acid composition wherein cooling is to 0°C over a period of 3-30 hours. The examples merely describe cooling a mixture from about 80°C at a rate of 5°C/hr, then stirring for 3 hours at 5°C for a rapeseed oil fatty acid feedstock or 0°C for a soybean oil fatty acid feedstock group. Nowhere in the references is it disclosed or suggested to **adjust the rate** of cooling at least once during cooling nor that the cooling rate be 4°C/h or less when the super saturation ratio is 60% or more.

In contrast, the present invention is directed to a method of performing solid-liquid separation on a fatty acid mixture in which the cooling rate is **adjusted at least once** during cooling and the cooling rate is from 4°C/h or less when a super saturation of 60% or more. Applicants note, that the claims have been amended to recite that the cooling rate is **adjusted at least once during cooling**, an action which is no where disclosed or suggested in the cited prior art of record. As the cited reference fails to disclose or suggest the claim limitations of

their adjusting the cooling rate at least once during cooling and the cooling rate being 4°C/h or less when a super saturation ratio is 60% or more, the claimed invention is clearly not rendered obvious by the cited reference and accordingly withdrawal of the rejection under 35 U.S.C. § 103(a) is respectfully requested.

The rejection of claim 5 under the judicially created doctrine of obviousness-type double patenting over claim 1 of U.S. 6,630,189 is respectfully traversed.

Claim 1 of U.S. '189 fails to claim a process in which the cooling rate is adjusted at least once during cooling and the cooling rate is 4°C/h or less when a super saturation ratio is 60% or more.

U.S. '189 merely claims a process in which cooling of a solution deposits crystals prior to conducting solid-liquid separation. There is no disclosure or suggestion in the claims of a step of adjusting the cooling rate at least once during cooling nor that the cooling rate be 4°C/h or less when a super saturation ratio is 60% or more. As such, the claimed invention is clearly not rendered obvious by claim 1 of U.S. '189. Withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

The provisional rejection of claim 5 under the judicially created doctrine of obviousness-type double patenting over claims 1-2 of co-pending application 10/454,493 is respectfully traversed.

U.S. '493 fails to disclose or suggest a process in which the cooling rate is adjusted at least once during cooling and the cooling rate is 4°C/h or less when the super saturation ratio is 60% or more.

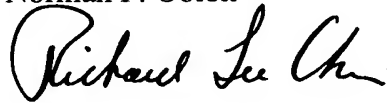
Claim 1 of U.S. '493 merely recites a dry fractionation process. There is no claim to adjusting the rate of cooling at least once nor that the cooling rate is 4°C/h or less when the super saturation ratio is 60% or more. The specification describes at paragraph [0021] that the cooling time and temperature are appropriate selected depending on the composition of

the fatty acid mixture wherein the cooling temperature is preferably -20 to 50°C and the cooling time is 0.5-30 hours. No rate of cooling is generally described although a cooling rate of 3°C/hr is exemplified. There is no claim or disclosure of adjusting the cooling rate at least once during cooling nor that the cooling rate is 4°C/h or less when a super saturation ratio is 60% or more. As such, the claimed invention is clearly not rendered obvious by the claims of U.S. '493 and accordingly withdrawal of the provisional rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

Applicants submit this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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